rience, as one who for thirty years has taken an earnest interest in these things. Pure knowledge is a glorious thing, and woe to the man who holds it light or blunts his sense for it. But to the question, Whence, whither, and to what purpose, it gives an answer to-day as little as it did two or three thousand years ago. It does, indeed, instruct us in facts; it detects inconsistencies; it links phenomena; it corrects the deceptions of sense and idea. But where and how the curve of the world and the curve of our own life begin—that curve of which it shows us only a section —and whither this curve leads, knowledge does not tell us. But if with a steady will we affirm the forces and the standards which on the summits of our inner life shine out as our highest good, nay, as our real self; if we are earnest and courageous enough to accept them as the great Reality and direct our lives by them; and if we then look at the course of mankind's history, follow its upward development, and search, in strenuous and patient service, for the communion of minds in it, we shall not faint in weariness and despair, but become certain of God, of the God whom Jesus Christ called his Father, and who is also our Father."

Much praise is due to the translator of this work for the admirable manner in which he has performed his difficult task. But Mr. Saunders has only confirmed here the high reputation which he gained by his idiomatic translations of Schopenhauer's essays. T.

A History of Babylonia and Assyria. By *Robert William Rogers*, Ph. D. (Leipzig), D. D., LL. D., F. R. G. S., Professor in Drew Theological Seminary, Madison, New Jersey. New York: Eaton and Mains. Cincinnati: Jennings & Pye. 1901. 2 Volumes. Vol. I., pages 429; Vol. II., pages 418. Price, $5.00.

The story of the discovery of the history and literature of Assyria and Babylonia as narrated in these two volumes by Dr. Rogers is as fascinating as any novel. Prior to 1820, the only knowledge the world possessed of Babylon and Nineveh was derived entirely from extraneous sources, Greek, Latin, Biblical, etc.; Babylon and Nineveh themselves had always preserved the silence of the grave.

Since that year, however, great libraries have been unearthed from the ancient sites of these cities, telling of their history, their science, their architecture, their jurisprudence, their religion, and their ethics, all written in an absolutely unknown language, which it remained for scholars to decipher. It is interesting to observe that the restoration of the life of Babylonia and Assyria and the decipherment of the cuneiform script of the Babylonians and Assyrians did not begin in connexion with Babylonia and Nineveh themselves, but took their origin in a far distant spot in Persia, in the ruins of Persepolis, the ancient capital of the Persian kings. These ruins the very earliest travellers had admired, and incidentally had discovered certain curious inscriptions written in wedge-shaped, arrow-headed characters. The first step in the decipherment of these inscriptions was taken in 1621 in a guess

made by a traveller, Pietro Della Valle, that the characters were to be read from the left to the right. This was afterwards confirmed by examination of more accurate copies of the inscriptions made by Sir John Chardin, in 1643. Kaempfer, a German Japanese and Oriental scholar, later took up the problem as to whether the characters were ideographic, syllabic, or alphabetic, but naturally could not arrive at a convincing conclusion with the data at his command. The traveller Niebuhr, father of the great historian, (1767) made more accurate and extensive copies of the inscriptions, and was lead to the conclusion that there were three separate systems of writing embodied. It did not occur to him that three languages were here represented, but he divided the inscriptions into three distinct classes and by careful comparison was able to show that only forty-two distinct signs were used. His list of signs was so nearly complete and so accurate that later study has made but little change in it. Niebuhr could now safely draw the conclusion that this language, whatever it might be, was written in alphabetic characters. This was a decisive step in advance; but Niebuhr did not possess sufficient linguistic or historical training to go farther. Tychsen of Rostock (in 1798) noticed a diagonal wedge in the inscriptions and suggested that it was the dividing sign used to separate words; he also declared that all the inscriptions of Niebuhr with one exception were written *in three different languages*. A very important historical conjecture was then made by Münter, of Copenhagen, to the effect that the builders of Persepolis were of the dynasty of the Achæmenides who reigned *circa* 730–330 B. C.; this conjecture afterwards enabled Grotefend to hit upon the names of certain kings. Münter also recognised the vowel *a* and the consonant *b*. "This was the first sure step in the decipherment. From our present point of view it may sound small, but it is to be remembered that it was made without the assistance of any bilingual text, taken bodily out of the darkness and gloom which had settled over this language centuries before. It was an achievement far exceeding that of the Egyptian hieroglyphics, which was secured by the aid of a bilingual text containing Greek. The name of Münter may well be held in honor among all who covet knowledge of the past of the Orient."

Three great French Orientalists, Duperon, Burnouf, and De Sacy, now came forward, and the problem was attacked linguistically from the point of view of comparative philology. Duperon, after great hardships, mastered the Avestan language, and published (1771) the sacred books of Zoroaster. His decipherment of the Avestan supplied the grammatical structure and part of the vocabulary of a language spoken over the same territory as the ancient Persian, and it was likely that many of the old words had been taken up from the ancient tongue, that its structure, declensions, etc., resembled in some respects the old Persian. De Sacy, the greatest Arabic scholar of his age (1787–1791), deciphered the inscriptions written during the Sassanian period in the Palevi character (227–641 A. D.). Here too, it was likely that the style of the Sassanian inscriptions had been copied from the style in which the more ancient Achæmenian scribes had written. De Sacy

found that one stereotyped form in particular was used in which there was scarcely any departure. It was as follows:

"*N., the great king, the king of kings, the king of Iran and Aniran, son of N., the great king, etc.*"

It was with these data that Grotefend of Göttingen, a classical scholar and not an Orientalist, but a prince of decipherers, began his labors. Taking Niebuhr's inscriptions, he assumed that since they accompanied the figures of kings they were titles of these monarchs and were presumably similar to the inscriptions of the Sassanian kings which De Sacy had just deciphered. It had previously been found by Münter that frequently a certain word appeared in these inscriptions in a short form and then again in a longer form, and the conjecture was immediate that in the latter case some grammatical termination had been added. Grotefend, taking the Sassanian formula as his analogue, was persuaded that this word meant *king* in the shorter form and that when it appeared twice in other places, in both the shorter and the longer form, the expression meant *king of kings*. Further, in both inscriptions in the first line this same word occurred a second time, followed in both cases by another word, likewise in both cases the same. Referring to the Sassanian inscriptions, Grotefend concluded that the word meant *great* and the entire inscription *great king*. But all this was conjecture. The words had not yet been alphabetically analysed, and it was to this analysis that Grotefend now bent his energies.

In the Sassanian inscriptions the first word was always the king's name; this was also probably the case in these Persian cuneiform inscriptions. If it were, then the inscriptions were set up by different kings, for the first words in the two cases were different. But the name with which the first began appeared in the second with its ending changed. From its situation in the two places, Grotefend concluded that the first was the name in the nominative and that the second was the name in the genitive, and thus the first inscription would begin: "*N., great king, king of kings*"; and in the second the word in its variant form would be equivalent to "*Of N.*" In the second inscription, this name was further followed by the word for *king*, and after this came another word which, after the analogue of the Sassanian inscriptions, would naturally mean *son*. And hence the whole phrase in the second inscription would run in the transposed order of this ancient language: "*Of N. king son*," meaning "*Son of N. king.*" But the same word *son* also occurs in the first inscription, following a name not possessing the title of king. From all this, Grotefend surmised that he had in these two inscriptions the names of three rulers: (1) the grandfather who had founded the dynasty, but was himself not a king; (2) the son who succeeded him and bore the title of king; and (3) the grandson who had also the same title.

Now, it was known by the discovery of Münter that the age of this inscription was the age of the dynasty of the Achæmenides, and it now only remained to search in the annals of this dynasty for three names that fitted the case. The first names

thought of were Cambyses, Cyrus, and Cambyses, but since the names of grandfather and grandson were here exactly alike, while on the inscriptions they were different, the conjecture failed. The next three considered were Hystaspes, Darius, and Xerxes. If this last assumption were correct, then the seven signs with which the first inscription began must be the name Darius, and the next thing to do was to find the form of the name Darius in ancient Persian. This was a difficult task, as the Greeks, in transliterating Oriental names, were exceedingly careless; but from a clue in Strabo and from the Hebrew form of the word he ventured upon the form Darheush, in which, as later inquiry showed, there were only two errors, namely that of *h* and *e*. Since nearly all the same letters were used in the second word, the transliteration of the latter was comparatively easy. The third name was also conjectured, with only two errors. The result was that Grotefend felt confident of having discovered thirteen of the forty-two alphabetic characters of which the Persian alphabet was supposed to be composed. It was an epoch-making result, and met with the usual fate of such achievements: The Göttingen Academy of Sciences refused to take the risk of disgracing itself by publishing Grotefend's paper, which saw the light of day soon afterwards as an appendix to the work of the great Göttingen historian, Heeren.

Grotefend had accomplished wonders; but not being an Oriental scholar he was now "at the end of his Latin," or rather, of his Persian. He did not have the Oriental spirit; he did not have an historical feeling for the Oriental environment. But it was he who first learned how to read an ancient Persian word, and from this in due course came the power to read the words of Babylonian and Assyrian. "To very few men," says Dr. Rogers, "has it happened to make discoveries of such moment."

Burnouf, the great French Orientalist, at once espoused Grotefend's cause, and brought his enormous Oriental learning to bear upon the problem. Burnouf had given the grammar of the Avestan a scientific basis, to which he added a knowledge of Persian life and religion which no one then possessed. He took one of Niebuhr's inscriptions that gave a list of the names of countries, and knowing these countries from other sources he found the equivalent for almost every character in the Persian alphabet. He next determined that the old Persian was not the same language as Avestan, but was closely related to it, and hence that all the Indo-European languages would contribute great light to the study of old Persian.

Lassen and Westergaard followed with more discoveries. An English officer, Major (afterward Sir) Henry Rawlinson, crowned the labors of all. His opportunities enabled him to copy and study many inscriptions inaccessible in Europe, and although his work was carried on under great difficulties, of which European scholars had never dreamed, he was successful in making an intelligible and connected translation of the long inscription of Darius on the rocks at Behistun, which he had copied at the risk of his life, beneath the blazing sun. Although he was early in communication with Burnouf and Lassen, his first work seems to have

been entirely independent of European influence, and is remarkable as having been strikingly similar to that of Grotefend. A third investigator, the Rev. Edward Hincks, a quiet country rector at Killyleagh, County Down, Ireland, one of the pioneers of Egyptian decipherment, also arrived independently at the translations of some of the Persepolitan texts. Says Dr. Rogers: "The work of decipherment was now over as far as the ancient Persian inscriptions were concerned. There was, of course, much more to be learned concerning the language and concerning the historical material which the inscriptions had provided. On these and other points investigation would go on even to this hour. But the pure work of the decipherer was ended, the texts were read. A language long dead lived again. Men long silent had spoken again. It seemed a dream; it was a genuine reality, the result of long and painful study through a series of years by scores of men, each contributing his share."

Such in brief is the romantic account as told in full by Dr. Rogers of the decipherment of the Persian cuneiform inscriptions of Persepolis; and now as to the bearing of this story on Assyrian, wherein we can be brief.

The mounds of Nineveh and Babylonia prior to the seventeenth century were known only to the traveller. The history of these cities was accessible only to the Greeks and the Latins and from some allusions in the Old Testament. In the eighteenth and the early part of the nineteenth centuries, the real explorations began. Niebuhr, Beauchamp, and Olivier determined the sites of these ancient cities; cylinders were discovered covered with a writing resembling the inscriptions of Persepolis; and James Rich and Sir Robert Kerr Porter, two Englishmen, by their enthusiastic descriptions aroused European interest to the highest pitch. Then followed the wonderful period of excavations, from 1843 to 1854, which were at first almost exclusively conducted by the French under Botta, and afterwards by the English under Layard and Rawlinson.

The results of these excavations ending in the astounding discovery of Rassam of the library of the royal city of Nineveh, gathered by Assurbanipal, were finally laid before the historians and linguists of the Orient for decipherment. The story is too long to give in full here. The task was accomplished in immediate connexion with the reading of the ancient Persian cuneiform inscriptions at Persepolis.

It will be remembered that only the first of the three languages found in the inscriptions at Persepolis had been deciphered; this was the ancient Persian. The second language was thought to be that of the Scythians or that of the Medes. It was here that Grotefend failed. Westergaard, Hincks, De Saulcy, Sir Henry Rawlinson, Sayce, Norris, Oppert, Loewenstein, and Talbot, were the great names in the decipherment of Assyrian and Babylonian inscriptions down to the year 1870, and by their labors the art may be said to have reached an assured position. The study of Assyrian began to take its place by the side of its older sisters in the universities; the material which Botta had sent to Paris, the inscriptions which Layard, Loftus, Taylor, and Rassam were sending to London, were quickly read, and

the history, religion, and literature of the ancient monarchies were more and more clearly elucidated. The decipherment of the Sumerian and Vannic languages followed with the excavations and explorations of the period between 1872 and 1900.

The new material, much of which has been gathered by the University of Pennsylvania, has not yet been fully exploited, but a vast amount of it has been interpreted, sufficient to give an elaborate picture of Assyrian and Babylonian history, civilisation, culture, religion, and modes of life. This Dr. Rogers has attempted to do in two large volumes, the interest of which may be gathered from the foregoing synopsis of a part only, and from the fact that the work, although written last year, is now in its second edition. *μ.*

LEHRBUCH DER PHYSIOLOGIE DES MENSCHEN. Von *G. von Bunge*, Professor in Basel. Erster Band: Sinne, Nerven, Muskeln, Fortpflanzung, in Achtundzwanzig Vorträgen. Mit 67 Abbildungen im Text und 2 Tafeln. Leipzig: Verlag von F. C. W. Vogel. 1901. Pages, viii, 381. Price, 10 Marks.

A work on human physiology by the distinguished professor of that branch in the University of Basel, Switzerland, will be welcomed on many sides. Not only has Professor Bunge displayed in his professional activity a wide acquaintance with physical and chemical science, but he has also come prominently before the scientific public as the representative of a new species of vitalism in biology. The old doctrine of vital or hyper-mechanical force which dominated the eighteenth century and still lingered in the thought of Johannes Müller, the greatest physiologist of history, has found its reviviscence in the last few decades in the persons of many eminent modern inquirers; and it has, in the variations which the modern scientific point of view has imposed upon it, been joyously received, and put to the most varied religious and teleological uses, by mystics, reactionaries, and devotees of esotericism in general, as well as by earnest religious thinkers. Most pronounced in the resumption of the old vitalistic view have been the botanists Hanstein and Kerner von Marilaun, and the pathologist Rindfleisch. The neo-vitalism of Bunge, however, is more philosophically established and more scientifically grounded than the majority of these vagaries, and it has, in its fundamental principles at least, much support from philosophical quarters. It must be noted, nevertheless, that the tendency of science at the present moment is in the opposite direction, and that the recent important discovery of mechanical and physico-chemical analogies to vital phenomena have rather weakened than strengthened Bunge's position in its full extent. As for Bunge himself, he openly accepts the tenets of the ancient vitalistic creed when he says in his *Physiological and Pathological Chemistry* (1889): "I must emphatically differ with you if you think you can refute vitalism by saying that there are no other factors active in living beings than the forces and materials of inanimate nature alone." On the other hand, it appears that Bunge's vitalism is nothing more than the expression of his philosophy of subjective idealism, which holds that it is a reversal of the true order of things to explain psychi-